

Claims

1. A height setting system for automatically adjusting a boom position on a work vehicle, the work vehicle including a cab, a boom, a work tool connected to a free portion of the boom, and a boom manipulating lever, the lever having at least one detent position, the boom including a boom arm, the system comprising:

a boom arm position sensor, the boom arm position sensor including a spring, a follower arm and a positional sensor, the spring biasing the follower arm against a surface of the boom arm such that the follower arm contacts and follows the boom arm through a rotational movement of the boom arm, the positional sensor detecting at least one boom arm position; and

an automatic boom position adjustment device connected to the positional sensor, the automatic boom adjustment device including a switch, the switch being located in the cab, the automatic boom position adjustment device creating at least one recorded position by recording the at least one boom arm position detected by the boom arm position sensor at an operation of the switch, the automatic boom position adjustment device automatically moving the boom to the at least one recorded position when the lever is placed in the at least one detent position.

2. The height setting system of claim 1, wherein the positional sensor is electronic.

3. The height setting system of claim 1, wherein the positional sensor is a potentiometer.

4. The height setting system of claim 1, wherein the automatic boom position adjustment device automatically releases the lever from the at least one detent position when the boom reaches the at least one recorded position.

5. The height setting system of claim 1, wherein the at least one detent position includes a first detent position and a second detent position and the at least one recorded position includes a first recorded position and a second recorded position.

6. The height setting system of claim 5, wherein the automatic boom position adjustment device automatically moves the boom to one of the first and the second recorded positions when the lever is placed in one of the first and the second detent

positions.

7. The height setting system of claim 1, wherein the automatic boom position adjustment device includes a conventional on-board computer and a detent release mechanism electronically connected to the on-board computer, the detent release mechanism releasing the lever from the at least one detent position upon receiving a signal from the on-board computer.

8. The height setting system of claim 1, wherein the automatic boom position adjustment device calculates a height of the work tool based on an angle of the boom and a distance from a rotational center of the boom to the work tool.

9. The height setting system of claim 8, wherein the automatic boom position adjustment device comprises a data entry portion for a numerical entry of the height of the work tool.

10. The height setting system of claim 9, wherein the automatic boom position adjustment device calculates and records a detected boom position based on the numerical entry.

11. The height setting system of claim 9, wherein the data entry portion comprises a keyboard and a viewing screen that displays at least one of the numerical entries and the at least one recorded position.

12. A boom position detecting system for detecting a boom angle on a work vehicle, the work vehicle including a mast, a boom and a work tool connected to a free portion of the boom, the boom capable of rotating about a pivot on the mast, the boom comprising a boom arm, the system comprising:

a boom angle follower, the boom angle follower including a spring and a follower arm, the spring biasing the follower arm against a surface of the boom arm such that the follower arm remains in contact with the boom arm throughout a rotational movement of the boom arm about the pivot; and

a positional sensor, the positional sensor detecting at least one boom angle.

13. The boom position detecting system of claim 12, wherein the positional sensor is electronic, the positional sensor being mechanically connected to the boom angle follower.

14. A work vehicle for performing a work operation, the work vehicle comprising:

- a frame;
- ground engaging means for supporting and propelling the frame;
- a mast extending upwardly from the frame;
- a boom having a first boom end and a second boom end, the first boom end pivotally coupled to the mast;
- a work tool operatively coupled to the second boom end; and
- a boom position detecting device, the boom position detecting device including:

- a boom angle follower for following the boom through at least one boom angle, the boom angle follower including a spring and a follower arm, the spring biasing the follower arm against a surface of the boom arm such that the follower arm remains in contact with the boom arm throughout a rotational movement of the boom arm about the pivot; and

- a positional sensor, the positional sensor detecting the at least one boom angle.

15. A work vehicle for performing a work operation, the work vehicle comprising:

- a frame;
- ground engaging means for supporting and propelling the frame;
- a mast extending upwardly from the frame;
- a boom having a first boom end and a second boom end, the first boom end pivotally coupled to the mast;
- a boom manipulating lever, the lever having at least one detent position;
- a work tool operatively coupled to the second boom end; and
- a height setting system for automatically adjusting a boom position on the work vehicle, the system including:

- a boom position detecting device, the boom position detecting device including a spring, a follower arm and a positional sensor, the spring biasing the follower arm against a surface of the boom such that the follower arm contacts and follows the boom through a rotational movement of the boom, the positional sensor detecting at least one boom position; and

- an automatic boom position adjustment device connected to the

positional sensor, the automatic boom adjustment device including a switch, the automatic boom position adjustment device creating at least one recorded position by recording the at least one boom position detected by the boom position detecting device upon operation of the switch, the automatic boom position adjustment device automatically moving the boom to the at least one recorded position when the lever is placed in the at least one detent position.

16. The work vehicle of claim 15, wherein the automatic boom position adjustment device automatically releases the lever from the detent position when the boom reaches the at least one recorded position.

17. A method of automatically setting boom positions for a work vehicle, the work vehicle including:

- a frame;
- ground engaging means for supporting and propelling the frame;
- a mast extending upwardly from the frame;
- a boom having a first boom end and a second boom end, the first boom end pivotally coupled to the mast;
- a boom manipulating lever, the lever having at least one detent position;
- a work tool operatively coupled to the second boom end,

the method comprising:

detecting at least one rotational boom position by using a boom position detection device, the boom position detection device including a spring, a follower arm and a positional sensor, the spring biasing the follower arm against a surface of the boom such that the follower arm contacts and follows the boom through a rotational movement of the boom, the positional sensor detecting the at least one boom position; and

recording the at least one rotational boom position detected by the boom position detecting device by using an automatic boom position adjustment device, the automatic boom position adjustment device automatically moving the boom to the at least one recorded position when the lever is placed in the at least one detent position.